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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/584,139	06/26/2006	Hiroshi Yoshida	500.46239X00	5670

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EXAMINER	
FORMAN, BETTY J	

ART UNIT	PAPER NUMBER
1634	

NOTIFICATION DATE	DELIVERY MODE
10/26/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/584,139	YOSHIDA ET AL.	
	Examiner	Art Unit	
	BJ Forman	1634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 September 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *28-47* is/are pending in the application.

4a) Of the above claim(s) *38-44* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *28-37 and 45-47* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 June 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *6/06, 9/09*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Group I, Claims 28-37 in the reply filed on 25 September 2009 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claims 45-47 have been rejoined with the elected group.

Claims 38-44 are withdrawn.

Claims 28-37 and 45-47 are under prosecution.

Information Disclosure Statement

2. The information disclosure statement filed 25 September 2009 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

The Office Action from the Japanese Patent Office has not been considered because it is not in English. The non-patent reference "Micromachine Technology Comprehensive List" has not been considered because the copy provided is not in a condition sufficient for translation. While Applicant has provided a statement of the

relevant portion, the condition of the reference prohibits any reasonable interpretation of the document and/or cited passages.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 32, 35-37 are rejected under 35 U.S.C. 102(b) as being anticipated by Kobori et al (U.S. Patent No. 6,749,731, published 6 September 2002).

Regarding Claim 32, Kobori teaches a fine metal structure having a plurality of projections (pin, 12) coated with a different material (i.e. gold film) (Column 3, lines 28-41 and Column 6, lines 32-67 and Fig. 1-2).

Regarding Claim 35, Kobori teaches the projections are made of an alloy containing a non-metal elements e.g. impurities and/or resin coating (Column 3, lines 28-41 and Column 6, lines 32-67).

Regarding Claim 36, Kobori teaches the projections further comprising nucleotide bases attached to the gold coating (Column 6, lines 32-67 and Fig. 1-2).

Regarding Claim 37, Kobori teaches the coating is gold (Column 3, lines 28-41 and Column 6, lines 32-67).

5. Claims 28-30, 32-35, 37 and 45-46 are rejected under 35 U.S.C. 102(b) as being anticipated by Georger et al (U.S. Patent No. 5,342,737, issued 30 August 1994).

Regarding Claim 28, Georger teaches a fine metal structure having a plurality of projections (microstructures) wherein the diameter is 1-3 μm (Column 5, lines 1-11 and Column 15, lines 4-6), wherein the height is greater than the diameter (Column 4, lines 61-68 and Column 15, lines 4-6) and wherein the microstructures are made of an alloy containing a non-metallic element (e.g. boron, Column 4, lines 14-30, Column 4, line 61-Column 5, line 11 and Column 12, lines 65-68).

Regarding Claim 29, Georger teaches a non-metallic element is boron (Column 12, lines 65-68).

Regarding Claim 30, Georger teaches the microprojection is coated with a coating e.g. gold (Column 13, lines 9-15).

Regarding Claim 32, Georger teaches a fine metal structure having microprojections coated with a layer different from the microprojections e.g. gold (Column 4, lines 14-30; Column 4, line 61-Column 5, line 11; Column 12, lines 65-68; and Column 13, lines 9-15).

Regarding Claim 33, Georger teaches a fine metal structure wherein the diameter is 1-3 μm (Column 5, lines 1-11 and Column 15, lines 4-6).

Regarding Claim 34, Georger teaches the height is greater than the diameter (Column 4, lines 61-68 and Column 15, lines 4-6).

Regarding Claim 35, Georger teaches the microstructures are made of an alloy containing a non-metallic element (e.g. boron, Column 4, lines 14-30, Column 4, line 61-Column 5, line 11 and Column 12, lines 65-68).

Regarding Claim 37, Georger teaches the microprojection is coated with a coating e.g. gold (Column 13, lines 9-15).

Regarding Claim 45-46, Georger teaches a microchip having the microstructures of Claim 28 (Example 3, Columns 14-15).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 28-37 and 45-47 are rejected under 35 U.S.C. 103(a) as being unpatentable Georger et al (U.S. Patent No. 5,342,737, issued 30 August 1994) in view of Takenaka et al (U.S. Patent No. 6,916,614, filed 8 March 2002) or Kobori et al (U.S. Patent No. 6,749,731, published 6 September 2002).

Regarding Claim 28, Georger teaches a fine metal structure having a plurality of projections (microstructures) wherein the diameter is between 0.25 and 30 μm (which is encompassed by the claimed range of 10nm to 10 μm), wherein the height is greater than the diameter and wherein the microstructures are made of an alloy containing a

non-metallic element (e.g. boron, Column 4, lines 14-30, Column 4, line 61-Column 5, line 11 and Column 12, lines 65-68).

Regarding Claim 29, Georger teaches a non-metallic element is boron (Column 12, lines 65-68).

Regarding Claim 30, Georger teaches the microprojection is coated with a coating e.g. gold (Column 13, lines 9-15).

Regarding Claim 32, Georger teaches a fine metal structure having microprojections coated with a layer different from the microprojections e.g. gold (Column 4, lines 14-30; Column 4, line 61-Column 5, line 11; Column 12, lines 65-68; and Column 13, lines 9-15).

Regarding Claim 33, Georger teaches a fine metal structure wherein the diameter is between 0.25 and 30 μm (which is encompassed by the claimed range of 10nm to 10 μm)(Column 5, lines 1-11).

Regarding Claim 34, Georger teaches the height is greater than the diameter (Column 4, lines 61-68).

Regarding Claim 35, Georger teaches the microstructures are made of an alloy containing a non-metallic element (e.g. boron, Column 4, lines 14-30, Column 4, line 61-Column 5, line 11 and Column 12, lines 65-68).

Regarding Claim 37, Georger teaches the microprojection is coated with a coating e.g. gold (Column 13, lines 9-15).

Regarding Claim 45-46, Georger teaches a microchip having the microstructures of Claim 28 (Example 3, Columns 14-15).

Georger teaches the structure is useful as an addressable sensor for electrochemical assays (Column 3, lines 5-20) but does not teach organic material attached to the surface of the microprojections. However, organic biomolecules e.g. DNA attached to microprojecting electrodes was well known in the art at the time the invention was made as taught by Takenaka and Kobori.

Takenaka teaches a microprojection array wherein elongated microprojections are coated with gold and linked to DNA (column 8, lines 17-28) thereby forming a DNA chip for DNA assays (Abstract). Takenaka teaches the microprojection array is capable of high throughput electrochemical detection DNA hybridizations with high sensitivity detection and analysis (Column 2, lines 50-60).

Kobori also teaches a microprojection array wherein elongated microprojections are coated with gold and linked to DNA (Column 6, lines 32-67) thereby forming a DNA chip for DNA assays (Abstract). Kobori also teaches the microprojection array is capable of high throughput electrochemical detection DNA hybridizations with high sensitivity detection and analysis (Column 5, lines 4-9).

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the DNA immobilization and DNA chips of Takenaka and/or Kobori to the microprojection array of Georger. One of ordinary skill in the art would have been motivated to do so based on the expressed desire of Georger to provide for electrochemical assays (Column 3, lines 5-20). The artisan would have been further motivated with a reasonable expectation of success based on the teachings of Takenaka and/or Kobori and further for the benefit providing high

throughput electrochemical detection DNA hybridizations with high sensitivity detection and analysis as desired in the art (Takenaka, Column 2, lines 50-60 and Kobori, Column 5, lines 4-9).

Conclusion

8. No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BJ Forman whose telephone number is (571) 272-0741. The examiner can normally be reached on 6:00 TO 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Nguyen can be reached on (571) 272-0731. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BJ Forman
Primary Examiner
Art Unit 1634

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